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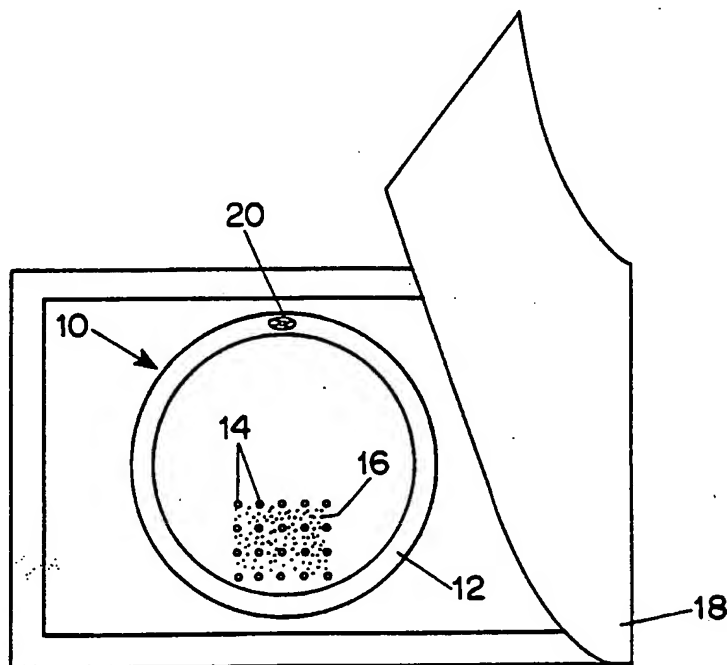
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(71)(72) Applicant and Inventor: **FARNHAM, John, E. [US/US]; 215 Pearl Street, Burlington, VT 05401 (US).**  
(74) Agent: **PHILLIPS, Peter, J.; Cooper & Dunham, 30 Rockefeller Plaza, New York, NY 10112 (US).**  
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(54) Title: **DISPOSABLE TOOTHBRUSH**



(57) Abstract

A disposable toothbrush (10) comprises an elastic latex condom-like sheath or cot (12) having brush bristles (14) extending from the sheath surface. The toothbrush (10) is initially in a rolled-up state, and is unrolled over a user's finger during use. The toothbrush (10) may be packaged in a foil wrapper (18) with dentifrice (16) embedded in the bristles (14).

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**DISPOSABLE TOOTHBRUSH**

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Background of the Invention

This invention relates to a disposable toothbrush, and more particularly to a single-use finger mounted disposable toothbrush designed to be easily carried and used away from a user's normal bathroom.

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When people are traveling or otherwise away from their home, they often desire to clean their teeth, especially after a meal and/or before an important business or social contact, or even for basic personal hygiene reasons. They often forget or do not wish to carry a regular-sized conventional toothbrush with separate toothpaste or other dentrifice because of their size and bulk, which do not fit easily into ones pocket or purse.

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Several toothbrush designs are shown in the prior art, but they do not appear to offer the utmost in compactness, convenience, sterility and ease of use.

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One prior design is in U.S. Patent No. 1,894,413 to Nenning et al., which relates to a toothbrush comprising a sheath of fibrous paper or other material shaped to fit over the tip of a finger and having bristles secured at the material end. U.S. Patent No. 2,068,400 to De Rome relates to a toothbrush comprising a pad holder formed of pliable material such as surgical gauze, cloth or other textile fabric or other material which doubled on itself and sewn together at its side edges to form a sheath at its tip. U.S. Patent No. 3,298,507 to Micciche relates to a tooth cleaner in the shape of an expandable bag for receiving a finger and having at its tip a bristle pad. U.S. Patent No. 4,134,172 to Arce relates to a disposable toothbrush having a radially expansible natural or synthetic rubber sheath material having a brushing element at its tip. U.S. Patent No. 5,068,941 to Dun

relates to a finger mounted toothbrush in the form of a foldable bag.

5 None of these prior art toothbrush designs are believed to provide a compact, convenient, sterile and easy to use disposable toothbrush which remains stable on a user's finger during use in the same manner as provided by the present invention.

#### Summary of the Invention

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It is an object of the present invention to provide a toothbrush which is easy to use, easy to carry and is disposable.

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It is another object of the present invention to provide a toothbrush which is adapted for mounting on a user's finger and which is constructed to be stable on the finger during use.

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It is another object of the present invention to provide a toothbrush which is packaged maintain sterility of the toothbrush.

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It is another object of the present invention to provide a prepackaged, disposable toothbrush that can be used anywhere at anytime without having access to water or requiring the user to wash his or her hands due to the covering of the finger by the device.

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According to one aspect of the invention, a disposable toothbrush is provided comprising a sheath of expansible material having brush bristles extending from a portion of the surface thereof, said material being arranged in a rolled up configuration and adapted to be unrolled over a user's finger to expose the brush  
35 bristles for use.

According to another aspect of the invention, a disposable toothbrush is provided comprising a sheath of expansible latex rubber having brush bristles extending radially outwardly and along a portion of the axial and circumferential surface of the sheath material when disposed for use, said material being arranged in a rolled up configuration and adapted to be unrolled over a user's finger to exposed the brush bristles for use, said brush bristles having dentrifice material, and wherein said material is packaged in a sealed foil package.

Other objects, advantages and features of the present invention will become more readily apparent when considering the following detailed description, attached claims and accompanying drawings.

#### Brief Description of the Drawings

Fig. 1 is a plan view of a novel toothbrush according to the invention, in its unrolled condition; and

Fig. 2 is an elevation view showing the toothbrush of Fig. 1 unrolled on a user's finger.

#### Detailed Description of the Preferred Embodiment

As shown in Fig. 1., the novel toothbrush 10 comprises a rolled sheath or cot 12 of elastic rubber type material, for example latex rubber, in a shape similar to a rolled condom. The sheath has formed bristles or brush elements 14 in its surface, which bristles extend radially outwardly and along a portion of the circumferential extent of the sheath. The bristles are also preferably made of latex rubber, integral with the sheath to thereby avoid the use of any different bristle substance which would have to be bonded to the sheath by a bonding agent which may not be biocompatible because of its possible toxicity or inclusion of carcinogenic agents. However, to the extent that a bonding agent is available which is non-toxic and n n-

carcinogenic, the bristles may be made of a different material than the sheath.

5 When used, the sheath would be unrolled over a user's finger as shown in Fig. 2. The elastic character of the sheath material keeps the toothbrush firmly positioned on the finger, avoiding shifting and slippage. The brush portion will occupy the distal portion of the user's finger.

10 The bristles are preferably initially impregnated with dentrifice 16 such as toothpaste for convenience of the user. The toothbrush may also be packaged in a sealed foil wrapper 18 for sterility and to contain the dentrifice. A group of several such foil wrapped toothbrushes, individually wrapped, can be sold as 15 a unit. The bristles should preferably be pliant enough to not interfere with the rolling of the sheath and flat packaging in the foil container for ease in storing and dispersing.

20 While the novel toothbrush according to the invention can be used without water, or without having the user necessarily wash his or her hands prior to use, water could, of course, be used to rinse out a user's mouth after brushing. The toothbrush can be easily removed by rolling up the sheath on the finger in the manner reverse from that prior to use, and the used device can 25 then be easily discarded. The material may also be biodegradable, especially for markets where the user cannot easily dispose the toothbrush in a trash receptacle.

30 The novel toothbrush can be inexpensively made and sold or even given away at restaurants, hotels, airports or on board aircraft, for example. Potential users may be armed forces personnel, frequent travelers, campers and for people having frequent social or business contacts who need to or would like to make a good personal appearance, and people concerned with personal hygiene.

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As seen in Fig. 2, the sheath may contain an indicia 20 such as a colored dot which would be seen through the rolled layers and aid

in rotating the sheath to the proper rotational position on the finger before unrolling, especially if the brush is hidden from view in the fully rolled state. The indicia may instead be positioned on the top layer of the roll when the sheath is in the rolled state.

Although one preferred embodiment has been shown and described, numerous variations and modifications will readily occur to those skilled in the art. For example, the bristles may cover a larger or even the entire circumferential surface of the sheath. The invention is intended to include such modifications and variations, and its scope is defined by the appended claims.

What is claimed:

1. A disposable toothbrush comprising a sheath of expansible material having brush bristles extending from a portion of the surface thereof, said material being arranged in a rolled up configuration and adapted to be unrolled over a user's finger to expose the brush bristles for use.
2. The toothbrush according to claim 1, wherein the toothbrush is made of latex rubber.
3. The toothbrush according to claim 1, wherein the material is packaged in a sealed foil wrapper.
4. The toothbrush according to claim 1, further including dentrifice on the brush bristles.
5. The toothbrush according to claim 1, wherein the brush bristles are located and extend radially outwardly and along a portion of the axial and circumferential surface of the sheath material when unrolled and disposed for use.
6. The toothbrush according to claim 1, wherein the brush bristles are made of latex rubber.
7. The toothbrush according to claim 1, further including a marking indicia disposed on a selected radial location relative to the location of the brush to aid in positioning the material before unrolling it on a user's finger during use.
8. A disposable toothbrush comprising a sheath of expansible latex rubber having brush bristles extending radially outwardly and along a portion of the axial and circumferential surface of the sheath material when disposed for use, said material being arranged in a rolled up configuration and adapted to be unrolled over a user's



finger to exposed the brush bristles for use, said brush bristles having dentrifice material, and wherein said material is packaged in a sealed foil wrapper.

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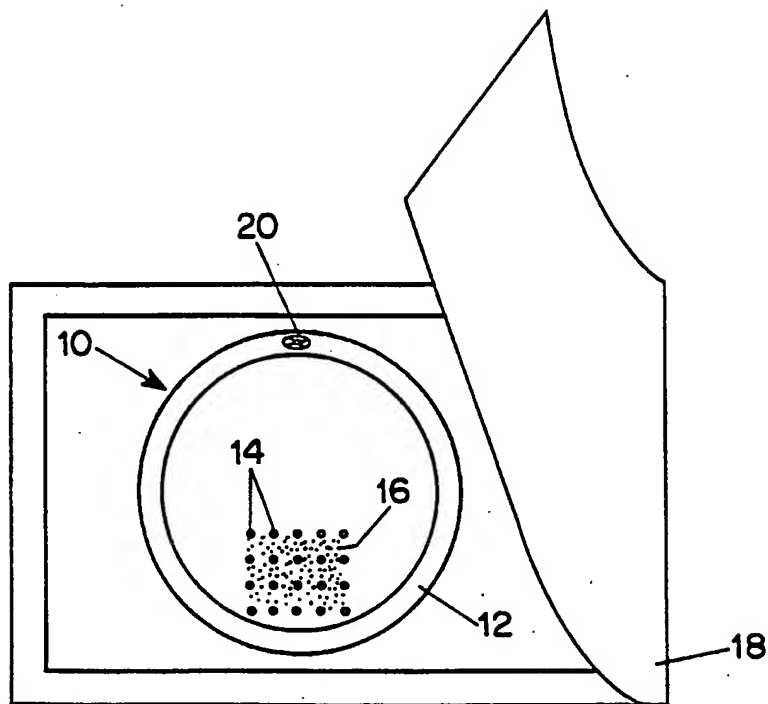


FIG. 1

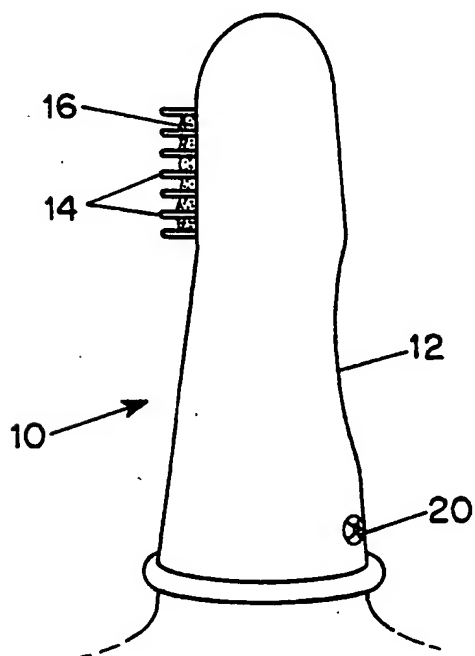


FIG. 2

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US93/06684

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(5) : A46B 9/02

US CL : 015/167.1, 227; 002/012

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 015/167.1, 227; 002/012; 206/361, 362.4

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	GB, A, 2 144 032 (Fennings) 27 FEBURARY 1985, see whole document.	1,2,5 ----- 3,4,6,7,8
X ----- Y	FR, A, 2 600 872 (Mecanetude) 08 JANUARY 1988, see whole document.	1-5,8 ----- 6-7
X	DE, A, 32 32 313 (Finke), 01 MARCH 1984, see whole document.	1-2,6,8
X	FR, A, 822,856 (Boulle), 10 JANUARY 1938, see figures (4-6).	1,6
Y	GB, A, 239,296, (Barton), 10 SEPTEMBER 1925, see whole document.	1,5,8

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

*A*	document defining the general state of the art which is not considered to be part of particular relevance	*T*	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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*O*	document referring to an oral disclosure, use, exhibition or other means	*Z*	document member of the same patent family
*P*	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

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Authorized officer

TONY G. SOOHOO

Telephone No. (703) 305-0771

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US93/06684

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE, A, 35 17 094 (Luth) 13 NOVEMBER 1986, see whole document.	1,5
Y	US, A, 2,637,031 (Friedman) 05 MAY 1953, column 3, lines 13-31, figures 1-4.	7
A	US, A, 128,093, (Allerton) 18 JUNE 1872.	1-2,5
A	UK, A, 2 099 305, (Welsh) 08 DECEMBER 1982.	1
A	UK, A, 2 043 438, (Bernard) 08 OCTOBER 1980.	1,5,8